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EXAMINER	
TSAY, MARSHA M	
ART UNIT	**PAPER NUMBER**
1656	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/566,354	SCHULZ ET AL.	
	Examiner	Art Unit	
	Marsha M. Tsay	1656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-19 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-19 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claims 1-19 are pending and currently under examination.

Priority: The benefit date is August 12, 2003, for the purpose of prior art.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 19 provides for the use of A1AT for preparing a medicament, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 19 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 12 recite A1AT. The acronym A1At needs to be defined in full upon its first appearance for clarity.

In claim 1, the preamble recites "from other protein components." It is unclear if the "other protein components" are in solution. Further, the preamble recites "solutions", but step 1(a) recites "solution." Clarification and correction are required.

Regarding claims 2-5, 8-10, 14-16, 18, the phrase "preferably" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "preferably"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Further claim 2 is confusing because of its multiple uses of the term "or". It is unclear if the elements listed after blood plasma or its fractions is referring to blood plasma or said A1AT-containing solution.

Claims 3, 13 contain the trademark/trade name DEAE-Sepharose®, DEAE-Sepharose® Fast Flow. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or

describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe anion-exchange gel and, accordingly, the identification/description is indefinite.

Claims 4, 13 recite TnBP. The acronym TnBP needs to be defined in full upon its first appearance for clarity.

Claim 6 recites chromatography on hydrophobic chromatographic materials is performed. Claim 6 is dependent on claim 1 which already recites subjecting the A1AT-containing solution to ion-exchange chromatography. Therefore, it is unclear if the hydrophobic chromatographic interaction is in addition to the ion-exchange step or if it is an alternative to the ion-exchange step. Further clarification is requested.

Claim 7 recites a material which contains heparin in an immobilized form (heparin gel) is performed. If Applicants' intent is to use heparin gel, then the phrase "a material which contains heparin in an immobilized form " should be deleted because said phrase does not necessarily mean heparin gel.

Claims 7, 11, 17 recite the limitation "the A1AT-containing fraction" in the claims. There is insufficient antecedent basis for this limitation in the claims and their parent claim.

Claims 8, 14 recite the phrase "is performed afterwards, preferably pasteurization" renders the claim indefinite. It is unclear if the virus inactivation step is performed after step (c) in claim 5, after a pasteurization step, or if pasteurization is the virus inactivation step. Further clarification is requested.

Claim 12 recites active form. It is unclear what is meant by the term "active form." Further, the term "especially" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim 13 recites the optional steps (c) and (d). Since the steps are noted as being optional, it is unclear if steps (c) and (d) are sequential or if each could occur in a different order after step (b). Further clarification is requested.

Claim 13(e) recites Triton/≥ 0.03% (w/w) TnBP. It is unclear what Applicants mean, i.e. virus inactivation with either Triton or TnBP. Further clarification is requested.

Claim 13(f) recites the limitation "the solution" in the claim. There is insufficient antecedent basis for this limitation in the claim and its parent claim.

Claim 15 recites ultra-/diafiltration. It is unclear what Applicants mean by ultra-/diafiltration, i.e. reduced by ultrafiltration and diafiltration, or reduced by ultrafiltration or diafiltration. Further clarification is requested.

Claim 16 recites the limitation "prion depletion" in the claim. There is insufficient antecedent basis for this limitation in the claim and its parent claim.

Claim 18 recites NSAIDs. The acronym NSAIDs needs to be defined in full upon its first appearance for clarity.

Regarding claim 19, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 12-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Mattes et al. (AU 199874180 B2; IDS as WO9856821). Claims 12-19 are drawn to an A1AT protein composition. Mattes et al. teach a purified A1AT protein product (p. 24 Table 2). The purified A1AT product obtained by the method of Example 2 has a purity of >90% (~118%) and has a specific activity of ≥0.8 PEU/mg (~1.0 PEU/mg) (p. 24; claims 12-18). Mattes et al. also teach the A1AT composition can be prepared as a solution or a lyophilized preparation as well as a method of preparing such a composition (p. 26 claim 11; claims 17-19).

While Mattes et al. do not explicitly teach the elements of an IgA content ≤1 mg/mL, a residual detergent of <50 ppm, or a monomer content of >90%, these elements are believed to be anticipated by Mattes et al. since the A1AT protein product of Mattes et al. already meets the instant elements of having a purity >90% (~118%), it would inherently not contain additional protein components or residual detergents, and since it has a specific activity of ≥0.8 PEU/mg (~1.0 PEU/mg), it would inherently have a monomer content of >90%. Instant claims 13-17 are dependent on the A1AT product of claim 12 and recite the process on how it is obtained. However, the method steps recited in claims 13-17 do not change the A1AT protein product, i.e. they are still drawn to an A1AT protein having a purity of >90% and a specific activity of ≥0.8 PEU/mg. Since Mattes et al. teach an A1AT protein product that meets the limitations of claim

12, claims 13-17 are also anticipated by Mattes et al. because they are drawn to the same product.

Claims 1-5, 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Taniguchi et al. (US 6284874). Taniguchi et al. teach a method of purifying alpha-1 proteinase inhibitor, also known as α_1-antitrypsin (A1AT), by flow-through chromatography, viral inactivation, and filtration (col. 2-4). In Example 1, Taniguchi et al. teach a plasma fraction of IV_1+IV_4 was solubilized in PEG/$ZnCl_2$, applied to a QAE anionic-exchange chromatographic column (col. 6 lines 60-65; claim 1a), eluted, and diafiltered (col. 7 lines 1-10). Taniguchi et al. further teach that 1.1 kg of a detergent solution of 10% w/v polysorbital 80 and 3% w/v tri-n-butyl phosphate (TnBP) was added to the diafiltered A1AT and incubated at 25°C for 1 hr. to inactivate any viral contaminants (col. 7 lines 10-15; claim 1b). The A1AT solution was then applied to a copper chelating medium and washed with 150 mM NaCl, 500 mM NaCl (col. 7 lines 20-25; claim 1c). The A1AT solution was the ultrafiltered, filtrate was collected, and diafiltered by ultrafiltration against 50 mM NaCl (col. 7 lines 30-35; claim 5, 9). Taniguchi et al. teach the filter used has a 100 kD MWCO, which is in the range of a filter having a pore size between 15-20 nm (col. 5 line 31-32; claim 10).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al. (US 6284874) in view of Isaksson et al. (WO 9426287; IDS). The teachings of Taniguchi et al. are outlined above. Taniguchi et al. do not teach a heparin gel or a pasteurization step.

Isaksson et al. teach a process for reduction of virus inactivating chemicals and/or detergents in an aqueous composition containing a water-soluble plasma protein (abstract). Isaksson et al. further teach that when the aqueous base comprises a salt of citrate at >1 M, the virus inactivating chemical or detergent can give a final concentration below 5 ppm (abstract). Isaksson et al. teach the method is applicable to any plasma protein (p. 6 lines 15-20). In example I, Isaksson et al. teach the plasma protein antithrombin III (AT III) was separated from plasma by using a heparin sepharose gel (p. 7 lines 15-18). Isaksson et al. further teach an additional virus inactivation step of incubating the plasma protein solution in 2 M sodium citrate (p. 7 lines 20-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguchi et al. by substituting the heparin sepharose gel of Isaksson et al. for the anionic-exchange column used in Taniguchi et al. (claims 6-7). One of ordinary skill would recognize that the chromatographic step can be substituted with a functionally equivalent column that is commercially available and would expect to have a reasonable level of success in using a heparin sepharose gel to isolate A1AT because Isaksson et al. disclose its success application in separating another plasma protein.

It would also have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguichi et al. by including the additional virus

inactivation step of Isaksson et al. to the A1AT purification process of Taniguich et al. (claim 8). The motivation to do so is given by Isaksson et al. which disclose that sodium citrate helps in reducing the residual detergent content and therefore, would result in a purer protein product.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marsha M. Tsay whose telephone number is 571-272-2938. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Kathleen Kerr Bragdon can be reached on 571-272-0931. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M. Monshy
MARYAM MONSHIPOURI, PH.D.
PRIMARY EXAMINER

August 16, 2007